

# EUROPEAN PATENT OFFICE

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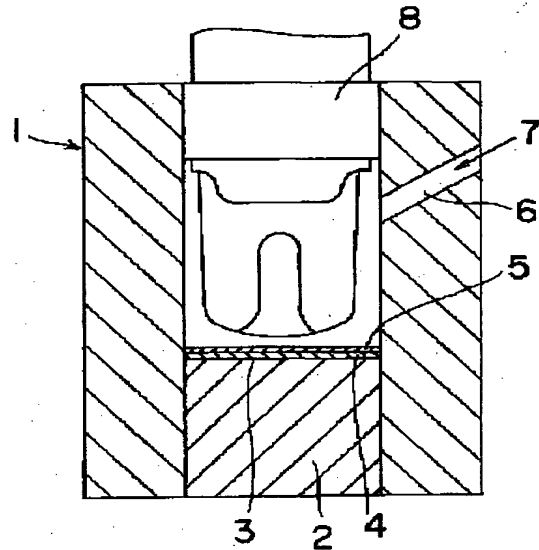
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TITLE : PISTON FOR INTERNAL COMBUSTION  
ENGINE AND MANUFACTURE  
THEREOF



**ABSTRACT :** PROBLEM TO BE SOLVED: To prevent separation of a membrane, eliminate necessity for after work and reduce a cost, by performing casting with a metal mold formed with a ceramic thermal spraying membrane by a gravity casting or molten metal forging method, and providing the ceramic thermal spray membrane transcribed from the metal mold in a piston.

**SOLUTION:** In an upper surface part 3 in a lower mold 2 of a piston molding metal mold 1, a zirconia ceramic thermal spraying membrane 4 excellent in heat insulation and heat resistance is formed. On the zirconia ceramic thermal spraying membrane 4, a metal thermal spraying membrane 5, containing one or two kinds or more of Zn, Al, Cu and Ni having a good wettability with aluminum molten metal and general purpose usability as an alloy component, is formed. The metal mold 1 is preheated, aluminum molten metal 7 is injected to a pouring gate 6, by a gravity casting or molten metal casting method, thermal spraying membranes 4, 5 are cast, simultaneously with casting aluminum alloy-made piston. After the aluminum molten metal 7 is solidified, when a mold is released, the zirconia ceramic 4 and metal thermal spraying membrane 5 are transcribed in an upper surface of the aluminum alloy-made piston.

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